JOURNAL
OF
DAIRY SCIENCE

VOLUME 67
JANUARY-DECEMBER 1984

THE AMERICAN DAIRY SCIENCE ASSOCIATION

AUTHOR INDEX OF PAPERS PUBLISHED IN VOLUME 67 OF THE JOURNAL OF DAIRY SCIENCE

A

Abdelgadir, I.E.O., 2554
Abgrall, B., 2493
Abrams, S. M., 1953
Adkinson, R. W., 398, 1806
Aguilar, A. A., 97
Ahmad, K., 1535
Aiello, R. J., 1249, 1707
Aisbett, C. W., 702
Akers, R. M.. 115, 2224, 2614
Albers, C. W., 1532
Albright, J. L., 3093
Ali, T. E., 3034
Al-Mohammad, M. M., 1655
Al-Shalhat, A. F., 1655
Ames, S. R., 276
Amin, M. M., 421
Anderson, G. W., 1983, 3069
Anderson, K. L., 421
Anderson, M. J., 569, 1209
Anderson, R. R., 185
Araki, C. T., 1047, 1752
Armentano, L. E., 1445
Ax, R. L., 2006, 2775
Ayaz, M., 1054
Ayers, J. W., 37

B

Bachman, K. C., 2922
Bachman, T., 1546
Baer, R. J., 2860
Bakshi, A. S., 1157
Baldwin, K. A., 2860
Baldwin, R. L., 97, 531, 2247, 2949
Ball, G. D., 2775
Balogu, D. O., 1739
Bandler, D. K., 2580
Bar-Anan, R., 854
Barbano, D. M. 1521, 1873, 2839
Barnard, D. J., 1546
Barnard, S. E., 1544, 1546
Barno, B., 2910
Bartol, F. F., 2797
Barton, B. A., 1236
Barton, E. P., 372
Bas, F., 2910
Bas, P., 2216
Bath, D. L., 2344
Batish, V. K., 513
Batra, T. R., 2420, 2446
Bauman, D. E., 2873, 2881
Baumrucker, C. R., 2055, 2500
Baxter, H. D., 88
Bazer, F. W., 2797
Beckett, D. C., 2192, 2200
Beede, D. K., 2546
Behnke, K. C., 2554
Behrens, W. C., 1468
Beitz, D. C., 2255, 2265
Benson, F. A., 2475
Bentinck-Smith, J., 1457, 2321
Bergen, W. G., 2519, 2525
Berger, L. L. 995, 1936
Bernhard, R. A., 1646
Bernier, J. F., 2369
Biggs, D. A., 3085
Bindas, E. M., 1249, 2978, 3069
Birkmeyer, K. D., 2283
Bishop, J. R., 437
Bitman, J., 1014, 2614, 2873
Bittner, A. S., 1209
Blackmon, D. M., 1007, 1489
Blake, R. W., 636, 1554, 1776, 2075, 2407
Block, E., 2939
Boddie, R. L., 1327, 1354, 2062
Bodine, A. B., 110, 437
Bodyfelt, F. W., 24, 1061, 1175
Bohlin, L., 729
Bohman, V. R., 1468
Boldman, K. G., 1069
Boling, J. A., 104
Boman, R. L., 569, 2066
Borges, A. C., 1694, 2210
Bourgeois, C. M., 2493
Bozak, C. K., 553
Bradford, G. E., 1868
Braun, R. K., 1783
Braund, D. G., 319
Breaux, J. K., 2532
Brisson, G. J., 2369
Britt, J. H., 1783
Broderick, G. A., 2902
Brown, A.C.G., 2873
Brown, E. M., 713
Brown, R. J., 499, 745, 919, 930, 1181, 1185, 1510
Brown, R. R., 1047
Brundage, A. L., 1965
Brunner, J. R., 2821
Buckner, R. C., 104
Bula, R. J., 2902
Burdick, D., 294
Burns, A. C., 1369
Burnside, E. B., 1273, 3008, 3015, 3034
Burritt, E. A., 1209
Burton, V. L., 1965
Bush, L. J., 3045
Bush, L. P., 104
Butler, J. E., 1599
Bynum, D. G., 1521, 2839

C

Cadden, A.-M., 1414, 2041
Caffin, J. P., 614
Calderon, I., 1905
Call, E. P., 140, 380, 1798
Campos, O. F., 2957
Carr, S. B., 1301, 1474
Cassel, E. K., 560
Cassell, B. G., 372
Chalupa, W., 1134, 1439
Chandan, R. C., 2850
Chandler, J. E., 398, 1806
Chanton, S., 939
Chase, L., 276
Chase, L. F., 1457, 2321
Chaves, J.B.P., 1694, 2210
Checketts, M., 2525
Cheryan, M., 1406
Chew, B. P., 270, 1316, 1832, 2507, 2566
Chilliard, Y., 2216
Christen, G. L., 1680, 1688
Christensen, D. A., 2315
Church, D. C., 216
Clabaugh, G. A., 1823
Clark, A. K., 1725, 3093
Clark, J. H., 1024, 1214, 1928, 2294
Clarke, N., 1752
Claypool, D. W., 216
Claypool, L. L., 2091
Cleret, J.-J., 2493
Coates, D., 553
Cochran, M. I., 2315
Colenbrander, V. F., 416
Collier, R. J., 2546
Collins, E. B., 1376
Collins, W. F., 405
Congleton, W. R., Jr., 644, 661
Conklin, V. J., 2084
Conley, H. H., 392
Conrad, H. R., 82, 123, 219, 427, 969, 1293, 1860, 2464, 2594
Cook, R. M., 276
Coppock, C. E., 574, 1457, 2321
Corlett, N. J., 2571
Cornwell, P. E., 1169
Coy, D. H., 2881
Craig, W. M., 2902
Crawford, R. J., Jr., 1945
Crist, W. L., 1850
Cuming, A. L., 1336

Cunningham, M. D., 416
Curl, J. S., 2797
Curtis, C. R., 817
Custodio, A. A., 2075

D

Dachir, S., 1776
Daggett, R. D., 1336
Daily, R. A., 1240
Darlington, R. L., 686, 861
Davis, C. L., 1214, 1227, 1976, 2294, 2336, 2471, 2894
deBoer, G., 1445, 2255, 2274
deBoer, M., 2188
DeLuca, H. F., 1236
deMan, J. M., 2188
deMan, L., 2188
Demott, B. J., 1539
Dentine, M. R., 208
DePeters, E. J., 1905, 2344
de Rham, O., 939
Devery-Pocius, J. E., 2055
deWit, J. N., 2701
Dickinson, F. N., 201, 1281
Dill, C. W., 60
Dombrowski, D. B., 1024
Drake, E. L., 1468
Dreels, J. M., 2055
Drendel, T. R., 1928
Duby, R. T., 2970, 3081
Dugdale, D. T., 1532
Dunny, G. M., 2441

E

Eberhart, R. J., 1336
Edamura, R., 749
Edlin, K. M., 3025
Ehle, F. R., 693, 1482, 2910
Eigle, W. N. 1599
Eisenman, J. R., 2507
Ellens, J. E., 313
Elliot, J. M., 698, 2455
Emery, R. S., 2525, 2532
Emmanuel, B., 344, 1199, 1912
Emmons, D. B., 592, 2192, 2200
Erb, H. N., 817
Erdman, R. A., 410, 2045
Ernstrom, C. A., 745, 930, 1510, 1599
Escobosa, A., 574
Euber, J. R., 2821
Evans, J. L., 2236
Evans, W. B., 620
Everett, R. W., 2028, 2812
Everson, R. J., 224, 2095

F

Fahey, G. C., Jr., 995, 1928, 1936
Fairchild, T. P., 1331
Farnsworth, R. J., 1336
Farrell, H. M., Jr., 1599
Fernando, R. L., 995
Fettman, M. J., 1457, 2321
Fillion, F. J., 2369
Finley, C. M., 1868
Firkins, J. L., 1936
First, N. L., 2775
Fisher, S. F., 110
Fleming, W. N., 686, 861
Foley, J. L., 1544, 1546
Folman, Y., 153
Forsberg, N. E., 2247
Foy, W. L., Jr., 802
Franke, A. A., 1905
Fredeen, A. H., 2344
Freeman, A. E., 449, 1761
Furtado, M. M., 2850
Furugouri, K., 1256
Fydenkevez, M. E., 3075

G

Galitzer, S. J., 884
Galton, D. M., 2580
Gamay, A. Y., 518, 1181
Gangjee, S., 110
Gardner, R. W., 2525
Gates, C. E., 574
Gates, R. S., 2034
Geleta, J. N., 707
Gentry, R. P., 1007, 1489
Gershman, M., 1306
Giesecke, D., 723
Gilbert, G. R., 194
Gilles, J., 1632
Gilliland, S. E., 1, 3045
Gilman, B. E., 1532
Gilmore, T. M., 1841
Glass, E. D., Jr., 1544, 1546
Glenn, B. P., 1115
Goodger, W. J., 675
Gorewit, R. C., 2050
Gough, R. H., 1369
Gourley, L. M., 1739
Grace, M. L., 1646
Grieve, D. B., 299
Grieve, D. G., 1421, 3015
Grossman, M., 1364, 1813
Grummer, R. R., 2294, 2894
Guest, R. W., 560
Gupta, S. K., 764
Gustafsson, B. K., 421
Gwazdauskas, F. C., 1249, 2978, 3069

H

Ha, J. K., 2302
Hackett, A. J., 1793, 2446
Hahn, E. C., 421
Hahn, M. V., 229, 2986
Hall, B. J., 1376
Hall, M. B., 2599
Hamada, T., 1452
Hammes, R. C., Jr., 1474
Hancock, D. D., 123, 1293
Hansen, C. L., 518
Hardy, E. E. 1666
Hargrove, G. L., 194, 2560
Harmon, R. J., 104, 1850
Harms, P. G., 1776
Harper, W. J., 2745
Harris, B., Jr., 2922
Harrison, J. H., 123, 219, 1293, 1860, 2464
Harrison, R. O., 2274
Hart, S. P., 888, 2356
Hartman, D. A., 908
Harvey, W. R., 2399
Harwalker, V. R., 1599
Hawk, H. W., 388, 392
Hayes, J. F., 361, 835, 841, 1496, 2429
Heald, C. W., 133, 334, 1823
Heap, H. A., 1632
Heavner, J. E., 707
Hegg, P.-O., 729
Heinrichs, A. J., 82
Heintz, J. F., 2974
Hemken, R. W., 104, 1850
Henderson, C. R., 1581
Hendrix, K. S., 224
Hennessy, K. J., 884
Herbein, J. H., 1249, 1707
Herlugson, M. L., 1965
Herranz, J., 759
Herz, Z., 153
Hespell, R. B., 808, 1227
Hidiroglou, M., 76, 1147
Hillers, J. K., 270, 444, 686, 861
Hitchcock, J. P., 1539
Ho, S. Y., 1489
Hobman, P. G., 2630
Hodate, K., 1452
Hodge, S. E., 313
Hodnett, D. W., 1236
Hogan, J. S., 1850
Hohenboken, W. D., 585
Holmann, F. J., 636
Holmes, K. R., 2471
Holpuch, D. M., 1316, 2566
Holter, J. B., 553
Hong, B. J., 2902
Hoover, W. H., 1240, 1945
Houghton, G., 779
Huber, J. T., 299, 1993, 2519, 2525, 2957

Hudson, G.F.S., 161, 171, 1264
Huggins, A. R., 1674
Hunter, J., 1306
Huntington, G. B., 1919
Husby, F. M., 1965
Hylton, W. E., 553

I

Ichiman, Y., 620
Ingalls, J. R., 1430
Ishii, T., 1452

J

Jackson, J. A., Jr., 104
James, R. E., 908
Janolino, V. G., 1161
Jansen, G. B., 897
Janzen, J. J., 437
Jaster, E. H., 995, 1976
Jelen, P., 1414, 2041, 2452
Jenkins, K. J., 592, 2590
Jenkins, T. C., 978
Jenkins, W. L., 574
Jenness, R., 1599
Jenny, B. F., 313
Jeon, I. J., 884
Johnson, D. E., 2554
Johnson, D. G., 2475
Johnson, L. P., 1281, 1767
Johnson, T. R., 1745
Johnston, L. A., 1832
Jones, G. M., 1823
Jordan, W. K., 779
Jorgensen, N. A., 1236, 2308

K

Kaetzel, C. S., 64
Kaim, M., 153
Kam, L.W.G., 1752
Kaminogawa, S., 2483
Kandylis, K., 2179
Karahadian, C., 764, 1892
Karau, P. K., 1739
Kenna, T. M., 1707
Kennelly, J. J., 344, 1199, 1912, 2302
Kertz, A. F., 2964
Kesler, E. M., 2560, 2914
Kester, J. J., 2757
Keys, J. E., 307, 1971, 2224
Kiddy, C. A., 388, 392
Kilara, A., 2734
Kim, H. S., 1
Kim, J. M., 518
Kindstedt, P. S., 879
King, G. J., 201
King, K. J., 2525
King, L. W., 661
Kirk, J. H., 441
Kirkpatrick, B. K., 2315
Klaenhammer, T. R., 44
Klarenbeek, G., 2701
Knickerbocker, J. J., 2797
Kniffen, D. M., 802
Knipfel, J. E., 1147
Kohl, D. M., 2084
Koivistoinen, P., 2071
Kollodge, S., 874, 1517
Komatsu, M., 1043
Koonce, K. L., 1806
Kosikowski, F. V., 879, 1887
Kroeker, E. M., 3052
Kronfeld, D. S., 1439
Kung, L., Jr., 299, 2519, 2525
Kuo, K. P., 1406
Kushman, J. E., 675

L

Labropoulos, A. E., 405
Lamb, R. C., 2066
Lance, V. A., 2881
Lange, A. L., 3057
Langlois, B. E., 1850
Lawrence, R. C., 1632
Ledford, R. A., 1660
Lee, A. J., 351, 2420
Lee, C. N., 2006
Lee, Y. H., 263
Leedle, J.A.Z., 808, 1227
Lefcourt, A. M., 115, 1014
Leibfried, M. L., 2775
Leng, R. A., 1072
Leone, F., 2910
Le Parc, O., 2493
Lewis, G. S., 146
Liesman, J. S., 2525, 2532
Lin, C. Y., 2389, 2420
Lindor, L. D., 2475
Lindsay, R. C., 764, 874, 960, 1194, 1517, 1892
Linnerud, A. C., 1983
Litopoulou-Tzanetaki, E., 1397
Ljusberg-Wahren, H., 729
Logner, K. R., 1007
Long, P. E., 707
Lucas, J. L., 1767
Ludens, F. C., 2460
Luedecke, L. O., 2566
Lund, D. B., 1699
Lundquist, R. G., 2475
Lusk, J. W., 1739
Lyle, R. R., 2255, 2265, 2274, 2283
Lynch, D. L., 2974

Mc

McAllister, A. J., 1793, 2389, 2420, 2446
McArthur, B. J., 1331
McCoy, G. C., 1214, 1976
McCutcheon, S. N., 2881
McDaniel, B. T., 208, 229, 2986
McDuff, C. K., 1336
McGilliard, A. D., 1865
McGilliard, M. L., 902, 908, 1249, 1474, 2084, 2978, 3069
McHan, F., 294
McKay, L. K., 950
McKenzie, W. N., Jr., 185
McMahon, D. J., 499, 745, 919, 930, 1185
McMillan, I., 1421

M

Macleod, G. K., 1421
Macura, D., 735
Magee, C., 2034
Mahoney, J. H., 2964
Maisi, P., 2833
Malik, R. K., 522
Manfredi, E. J., 2028
Mangino, M. E., 2711
Mangurkar, B. R., 1496
Marcek, J. M., 2380
Marin, A., 52
Markowsky, G., 1306
Marshall, R. T., 52, 263, 1680, 1688
Martin, R., 2910
Martin-Villa, C., 759
Massey, L. K., 255
Masters, A. R., 1887
Mathieu, C. M., 2957
Mathur, D. K., 522
Matsumoto, M., 1452
Matthews, M. E., 2680
Mattila, T., 2833
Mawhinney, T. P., 52
Meisterling, E. M., 1240
Melachouris, N., 2620, 2693
Mellenberger, R. W., 1783
Merchen, N. R., 1936
Merrill, W. G., 560, 2580
Miller, R. H., 307, 459
Miller, W. J., 1007, 1489
Milligan, R. A., 560
Mills, S. E., 1445, 2255, 2265
Mitchell, B. A., 2436
Mitchell, D. S., 388
Mitchell, J. R., 686
Miyata, Y., 1256
Moe, A. J., 1301, 1474

Mohammad, W. A., 1364, 1813
Monardes, H. G., 361, 835, 2429
Montgomery, M. J., 88
Moore, J. J., 1331
Morand-Fehr, P., 2216
Morr, C. V., 2620
Morrill, M. B., 2554
Morris, H. A., 2723
Morton, R. H., 1548
Moxley, J. E., 361, 835, 841, 1496, 2429
Muir, D. D., 1666
Muller, L. D., 1953, 3093
Murdock, F. R., 270
Murphy, M. R., 1221, 2294, 2336, 2471
Murphy, W. A., 2881
Murphy, W. M., 1532
Muscato, T. V., 545

N

Nakai, S., 1390
Nakamura, R. M., 1047, 1752
Narikawa, S., 620
Neathery, M. W., 1007, 1489
Nebel, R. L., 398
Nelson, J. H., 2108
Nepote, K., 707
Newman, S. K., 146
Ng-Kwai-Hang, K. F., 361, 835, 841, 3052
Nickerson, S. C., 826, 1327, 2062
Nicoletti, J. M., 1221, 1227
Ninomiya, T., 2483
Nocek, J. E., 319, 334, 1038, 2599
Nolan, J. V., 1072
Nonnecke, B. J., 606, 2863
Norman, H. D., 372, 1030, 2010, 2021
Novak, N. F., 1841
Nutt, M. A., 2084
Nuurtamo, M., 2071

O

Obadiah, Y.E.M., 569
Obara, Y., 1043
O'Dell, G. D., 313, 437
Odwongo, W. O., 427
O'Fallon, J. V., 1316
Okigbo, L. M., 1510
Oldham, J. D., 1090
Oliver, S. P., 2436, 2970, 3075, 3081
Oltenacu, P. A., 1783
Orberg, P. K., 37
Otterby, D. E., 2475
Owen, F. G., 3093
Owen, J. R., 88

P

Paape, M. J., 2571
Packard, V. S., 2723
Pahwa, G. S., 2001
Palmer, R. H., 1532
Palmquist, D. L., 978
Pandey, R. S., 2001
Pankey, J. W., 826, 1327, 1336, 1354, 2062
Papas, A. M., 276, 545, 2887
Park, K. H., 1699
Parkash, O., 513
Parks, O. W., 794
Parsons, J. G., 1841
Patton, S., 1323, 3057
Patton, W. H., 3057
Pearson, R. E., 180, 307, 372, 1281, 1767, 1823
Peel, C. J., 2873
Perry, T. W., 224
Peters, J. P., 698, 2455
Peters, R. R., 2571
Peterson, R. C., 224
Petersson, L. G., 2580
Petitclerc, D., 2519
Pfeiffer, W. C., 3015
Pham, A.-M., 1390
Philpot, W. N., 1354
Pinheiro, A.J.R., 1694, 2210
Plunkett, S. S., 380
Pocius, P. A., 2055
Polan, C. E., 276, 334, 888, 1038, 1249, 2356, 2978
Pollak, E. J., 1590
Poutrel, B., 614
Powell, R. L., 893, 1359, 2021
Prange, R. W., 2308, 2970, 3081
Pulusani, S. R., 1169

Q

Quaas, R. L., 1590, 2999

R

Rae, R. C., 1430
Rainard, P., 614
Randy, H. A., 2974
Ranganathan, B., 513
Rao, D. R., 1169
Ray, D. B., 64
Rearte, D. H., 2914
Reddy, A. V., 1169
Rege, J.E.O., 847
Reid, R. L., 2594
Reutzel, L. F., 2964
Reynolds, P. J., 2873
Richardson, G. H., 518, 930, 1181, 1185, 1510, 2856
Richardson, T., 2757
Richter, R. L., 60
Rickabaugh, B., 1439
Riley, R. E., 270
Roberts, R. M., 2797
Robinson, F. R., 224
Robinson, J. L., 1024
Robinson, P. H., 1525
Rogers, J. A., 1928, 1953
Ron, M., 854
Rosenberg, M., 153
Rothschild, M. F., 1761
Rotz, C. A., 1745
Rowe, L. D., Jr., 574
Roy, G. L., 2420
Ruiz, C. F., 1806
Ruppanner, R., 675
Russell, J. B., 987, 1525
Russell, R. W., 2255
Ryan, J. M., 1369

S

Sabioni, J. G., 1694, 2210
Safi, W. J., 1655
Sagi, R., 2034, 2050
Sahlu, T., 1725, 2460
Salah, M. S., 185
Salih, M. A., 7
Salji, J. P., 1054
Samples, D. R., 60
Sanders, O. G., 1539
Sandholm, M., 2833
Sandine, W. E., 7, 24, 37, 1061, 1175, 1674
Satter, L. D., 2308
Sawaya, W. N., 1054, 1655
Schaeffer, L. R., 1264, 1273, 1567, 3008, 3034
Schingoethe, D. J., 598, 1725, 2460, 3061
Schmidt, A. L., 3075
Schmidt, M. K., 140, 1798
Schmidt, R. H., 2723
Schneider, P. L., 2546
Schultz, L. H., 367
Schultze, W. D., 2571
Schwart, R. B., 636
Schwartz, D. P., 794
Scott, D. L., 133
Scott, N. R., 2034
Searle, S. R., 2028
Seawright, G. L., 1047
Seidel, G. E., Jr., 2786
Sejrsen, K., 1993
Selselet-Attou, G., 2216
Senger, P. L., 686, 861
Senyk, G. F., 1521, 1660
Shanks, R. D., 1024
Shaver, R. D., 410, 2045

Sheffield, L. G., 185
Shelaih, M. A., 518, 1510
Sherbon, J. W., 1873
Shijimaya, K., 1256
Shipe, W. F., 1660
Shockey, W. L., 427, 969, 2594
Shultz, T. A., 868
Shumway, C. R., 636, 2407
Shuster, D. E., 2580
Silva, A. G., 2957
Silva, D. O., 1694, 2210
Simpson, W. L., 1965
Singh, R. S., 513
Singh, S., 1323
Sivarajasingam, S., 3008, 3015
Sklan, D., 1439
Slenning, B. D., 675
Smith, A. R., 421
Smith, D. E., 1157
Smith, G. C., 1421
Smith, K. L., 606, 1293, 2863
Smith, L. W., 1971
Smith, N. E., 97, 1905, 2247, 2344, 2949
Smith, P. W., 794
Smith, R. D., 817
Smith, R. E., 2475
Smith, S. P., 2999
Sniffen, C. J., 276, 545, 817, 987, 2887, 2974
Snyder, T. J., 1953
Spicer, L. J., 1993
Staley, T. E., 3045
Stallings, C. C., 902
Stanley, D. W., 749
Staples, C. R., 995, 1214, 1976
Steele, W., 1716
Stern, M. D., 2308
Stevenson, J. S., 140, 380, 1798
Stewart, G. D., 598
Stohrer, M., 723
Stommes, R. C., 2475
Stone, W. K., 405
Street, J. C., 1209
Stringer, W. C., 2914
Stroud, B., 1014
Stutts, J. A., 2554
Sudweeks, E. M., 636
Swaisgood, H. E., 1161
Swanson, L. V., 585, 2380
Sweetsur, A.W.M., 1666
Szijarto, L. F., 3085

T

Tanaka, T. S., 2507
Tandon, P. K., 2399
Tanida, H., 585
Tao, H., 2614
Taylor, M. J., 2922
Tesar, M. B., 1745
Thatcher, W. W., 2797
Thomas, C. L., 372, 1281
Thomas, D. W., 2066
Thomas, J. W., 299, 1745, 2532
Thompson, J. R., 628, 847, 1868
Thunell, R. K., 24, 1061, 1175
Tiemeyer, W., 723
Tigges, R. J., 180
Timms, L. L., 367
Tippetts, E. L., 1510
Todhunter, D. A., 1293
Tomaszewski, M. A., 2407
Tong, P. S., 779
Torstrup, D. A., 3057
Townsley, P. M., 735
Tritschler, II, 2970, 3081
Trop, M., 1381
Trotta, A. P., 2560
Trout, J. R., 802, 2236
True, J. A., 2475
Tucker, H. A., 1993
Tyrrell, H. F., 2873

U

Urquhart, A., 1414, 2041

V

Vafopoulou-Mastrogiannaki, A., 1397
Vandersall, J. H., 410, 2045
van der Werf, J., 1590
van de Voort, F. R., 749, 3085
Van Horn, H. H., 2922
Van Raden, P. M., 1761
Van Vleck, L. D., 161, 171, 1069, 3025
Varga, G. A., 1240
Varo, P., 2071
Vatthauer, J. L., 1813
Veenhuizen, J. J., 1865
Vernal, V., 2452
Vesely, J. A., 2420
Vidal-Valverde, C., 759
Vinson, W. E., 180, 372, 1281, 1767
Visek, W. J., 481

W

Waghorn, G. C., 531
Waldo, D. R., 1115
Walters, J. L., 569, 2066
Wanger, A. R., 2441
Wardrop, J., 351
Warner, R. G., 319
Watson, D. L., 2608
Watts, J. L., 2062
Wauthy, J. M., 2420
Weinberg, P., 1660
Weiss, W. P., 416, 427
Welch, J. G., 1532
Weller, J. I., 201, 1030, 2010
Welsch, U., 1323
West, I. G., 1666
White, C. H., 1369
White, F. D., 1007
Whitney, R. McL., 1599
Wiggans, G. R., 201, 854, 893; 1030, 2010
Wijayashinghe, M. S., 2949
Wilcox, C. J., 2546, 2922
Wilcox, M. L., 2407
Wilk, J. C., 229, 2986
Williams, C. B., 1273
Wilson, R., 294
Wilton, J. W., 897, 3008, 3015
Windschitl, P. M., 3061
Winkel, S. A., 2856
Winter, K. A., 2420
Wise, G. H., 1983
Wishnetsky, T., 2850
Wohlt, J. E., 802, 2236
Wolfe, T. W., 950
Wolfenson, D., 2797
Woo, A. H., 874, 960, 1194, 1517
Wood, D. L., 1014, 2873
Woodford, S. T., 2336, 2471
Wright, C. T., 44

XYZ

Yamauchi, K., 2483
Yoshida, K., 620
Young, C. W., 472
Young, J. W., 1445, 1865, 2255, 2265, 2274, 2283
Zadow, J. G., 2654
Zall, R. R., 2621
Zehren, V. L., 2100
Zerfiridis, G. K., 1397
Zinn, S. A., 1457, 2321
Ziv, G., 707

SUBJECT INDEX OF PAPERS PUBLISHED IN VOLUME 67 OF THE JOURNAL OF THE AMERICAN DAIRY SCIENCE ASSOCIATION

ASSOCIATION AFFAIRS

Arthur G. Hansen's invitation to the 79th annual meeting, 479
author's index of papers, 3103
awards program, 2127
board of directors meeting, 2147
  reorganization, 2155
call for papers, 2120, 2481, 2819, 3100
executive secretary's report, 2148
errata, 3099
future meetings:
  1985 University of Illinois, June 9–12
  1986 University of California, Davis, June 22–25
  1987 University of Missouri, June 21–24
handbook for officers, committees, representatives, 237
instructions to authors, 249
Journal of Dairy Science for 1983, 251
memorials:
  Howard W. Gregory, 478
  Williard H. Martin, 478
  Enos J. Perry, 248
  Charles E. Wylie, 1368
nominations for:
  Miles-Marschall International Dairy Science Award, 1597, 1885, 2177
  for officers, 913
officers, committees, and representatives, July 1984–June 1985, 2164
opening cremony, 2121
past presidents' dinner, 2148
presidential address, 2122
student division articular, 11 (June), 13 (December)
treasurer's report, 2149

DAIRY PRODUCTION

BREED

Ayrshire

cell counts, 2429
estrus indoors, 1993
inbreeding, 161, 171
lipid supplements, 1716
milk records, 2011
sire evaluation, 895

Brown Swiss

inbreeding, 161
sire evaluation, 893

Guernsey

antibiotic residues, 438
milk records, 2011
sire evaluation, 895

Holstein-Friesian

antibiotic residues, 438
arginine infusion, 2507
bicarbonates, 1457, 3252
blood constituents, 2236
by-products, 2922
calcium, 1860
  soaps, 978
calving ease, 1496
canola protected feed, 1414
chloride deficiency, 2321
concentrates, 3252
conceptions, 140
corn stover, 1971
dam adjustment, 1353
days open, 636
dietary chloride, 1457
digesta passage, 1953
digestion events, 995
eating behavior, 585
energy, 1421
environment, 1752
estrous cycle, 148
fatty acids, 978
feeding frequency, 1445, 1983
first calf, 553
genetic variants, 835
gluconeogenesis, 1707
growth hormone, 276, 2873, 2881
heat stress, 2546
high fat rations, 598
  sodium, 574
inbreeding, 161
Israeli, 854
ketosis, 2255, 2265, 2274, 2283
L-tyrosine, 1430
mammary gland, 531
  secretions, 2863
metabolism with carotene, 1249
milk orotate, 1024
milk sampling, 195
nucleic acids, 723
nutrient absorption, 1919
particulate passage, 693
parturient paresis, 822
pasture, 2914
photoperiod, 2380
production traits, 841
protected methionine, 545
protein, 276, 1421
  degradation, 2294
  supplements, 1928
reproduction, 1776, 1784, 1798, 2978, 3069
selenium utilization, 222, 1860
silage feeding, 307

single cell protein, 216
sire evaluation, 893
  selection, 2025
tributyrin treatment, 1452
type classification, 1767
  mastitis, 1281
udder temperature, 1014
uridine monophosphate synthase, 1024
urinary excretion, 698
volatile fatty acids, 2887
water dynamics, 2344
wet corn gluten, 1214, 1976

Jersey

alfalfa hay, 2344
almond hulls, 98
antibiotic residues, 438
final scores, 377
high sodium, 574
sire evaluation, 893
  selection, 161
soybean-sorghum silage, 91
reproduction, 1776
type, 372

BREEDING AND GENETICS

ancestor merit, 893
Ayrshire inbreeding, 161, 171
  production, 177
body measurements, 3034
bull cycle, 1266
calf mortality, 632, 847
calving ease, 3041
  interval, 168
casein heritability, 841
cell counts vs. production, 2429
component heritabilities, 2032
conception rate, 2413
covariances, 1489, 1589
cow evaluation, 1359, 1567
crosslines, 2420
dystocia, 451, 847
environment, 2423
fat yield, 1362
feet, 2986
fertility, 453
gene pool, 475
genetic considerations, 445
  engineering, 1323
  evaluation, 1567
  manipulation, 2812
goat breeding, 1813
  evaluation, 201, 1364
  fat yield, 1366
  transmitting ability, 1070
  trends, 1071, 1364
health heritabilities, 460
heifer performance, 2420
heparin, 2219
herd life, 2999
heterosis, 2426
hoof traits, 230
  heritability, 2990
  measurements, 2987
inbreeding, 168
  northeast, 171
inherited diseases, 1024
Jersey type, 372
  scores, 377
  traits, 373
linear programming, 897
  assumptions, 899
livestock selection, 897
longevity, 1561
mammary gland, 1323
mastitis, 632, 2031
maternal correlations, 851
maximum profits, 2407
measurements, 1769
milk components, 445, 2028
  composition, 844
  producing ability, 2075
  yield, 2402
milking speed, 1273
multiparity, 1035
multiple traits, 1554, 1570, 1581
  evaluation, 1591
nonrandom mating, 1264
parameters, 2389
part lactations, 2401
parturition, 629
phenotypic correlations, 845
physiological characters, 1558
pleiotropy, 2075
prediction error, 1574
production, 168
  traits, 835, 844
productive lifespan, 2999
protein variants, 836
  polymorphism, 839
purelines, 2420
reproductive traits, 1507
selection bias, 1590
  consequences, 1581
sires artificial insemination, 163, 476, 1407
  best linear unbiased prediction, 2399
  calving ease, 3025
  contemporary comparison, 893
  correlated traits, 2016
  daughter performance, 3005
  economic merit, 3015
  effects, 2392
  evaluations, 449, 893, 1030, 1264, 1271, 1567, 3031, 3035
  failures, 3001
  herd, 2023
  indexes, 1032
  linear programming, 3015
  milk yield, 2025
  models, 1267, 2013
  Monte Carlo comparison, 1761, 2389
  multiple traits, 3032
  parity correlations, 2015
  pedigrees, 845
  predicted differences, 3012

ranking, 3015
scores, 1761
selection, 441, 459, 1761, 2021, 2407
stayability, 168
tissue balance, 2075
traits, 2996
transmitting ability, 1778
type classification, 1767
udder edema scores, 208
variances, 3039

DAIRY FARMS

AM-PM samples, 194
adjustments, 199
antibiotic detection, 437
body temperature, 1052
bull fertility 689
canola feeding, 2042
conceptions, 690, 863
calf mortality, 908
cow activity, 868
resting, 871
centralized milk testing, 3085
credit evaluation, 2086
environment, 1047
heat stress, 1048
herd health, 188, 681
life, 661
herdsman inseminators, 691
hoof measurements, 229
improvement variables, 181
large dairies, 686, 679, 861
lifetime profits, 180
machine milking, 2062
antisepsis, 1336
bacterial transport, 2034
contamination, 2038
evaluation, 1327
flow patterns, 2052
inflations, 2067
iodine residues, 2588
linear designs, 2035
milk quality, 2584
oxytocin, 115, 2053
premilking duties, 2580
speed, 467, 1273
time, 1276
udder hygiene, 2588
management, 670, 675
components, 681
dynamic model, 644
parameters, 646, 663
scores, 678
simulation, 644
mastitis (see diseases)
microcomputer, 1048
net income, 182
predicting milk yield, 351
protected lipids, 2041
shade, 872
subroutines, 654
telemetry, 1047
type classification, 1767
weather, 869

DISEASES

Mastitis

abnormal milk, 1510
Albacillin, 1843
antibiotic therapy, 370, 3081
dye marker, 1841
residues, 3081
retention, 437
antigens, 2610
antimicrobial agents, 707
assay, 3077
backflush, 1850
bactericidal activity, 616
body temperature, 1010, 1019
cephapirin, 708
challenge, 1328
chloride, 1045
clinical cases, 463
coliforms, 607, 2439
inhibition, 2864
typing, 1306
colostrum, 3083
complement, 614
conductivity, 1511
control, 3075
Delvotest-P, 437, 3082
dodecyl sulfonic acid, 1354
epithelium, 826
erythromycin, 708
exposure, 1345
dry cow therapy, 3083
Georgia, 620
Gram-positive, 607
growth inhibitor, 2867
health costs, 647
heifers, 2608
hemolysis, 615
incidence, 3014
infection rate, 2574
intramammary, 1853
device, 2573
iodophors, 1329, 1347
lactation, 1841
lactoferrin, 609, 1045, 2866
leukocytes, 625, 830
mice, 2566
microassays, 608
migration, 830
milking hygiene, 1327, 1338
parlors, 1851
milk yield, 1928
N-acetyl-β-D-glucoaminedase, 1043
neutrophiles, 831
oxytetracycline, 708
pathogens, 369, 1515, 1829, 2062
penicillin, 438, 708, 2970
peripartum, 1832
phages, 1306
postpartum, 1837
probabilities, 669
quarters infected, 424
resistance, 1558, 2031

scours, 2964
season, 1833
selenium, 1293
sodium chloride, 3075
somatic cells, 362, 369, 817, 1284, 1513, 1829, 1850, 2429, 2575
staphylococcal vaccine, 2608
surfactants, 422
teat dips, 422, 1327, 1336, 1340, 1354, 2062, 2436, 3075
excised, 1331
liners, 1853
sealers, 1331
tissues, 727
testing, 462, 1823
therapy, 1295, 2437
type scores, 1283
udder hygiene, 2588
vaccine, 622, 2608
vitamin A, 1834, 2566
vitamin E, 1293
yield losses, 442

Metabolic Diseases

gluconeogenesis, 1707, 2265, 2283
hypoglycemia, 1452
ketogenesis, 347, 1453, 1707
ketonemia, 1452, 2274, 2283
ketosis, 2255, 2265, 2274, 2283
parturient paresis, 632, 817, 822, 1236, 2939
temperature, 1018
udder edema, 208
uridine monophosphate synthase deficiency, 1024

LACTATION

amino acids, 1434
ammonium salts, 288
AM-PM milk samples, 194
fat, 356
arginine infusion, 2507
blood changes, 1454
constituents, 2239
body temperature, 1756
calving interval, 642
canola meal, 1431
protected, 1414
days open, 639
early, 115, 1457, 2321
environment, 574, 702
fatty acids turnover, 1439
first, 1421
formaldehyde, 1434
gluconeogenesis, 1707
growth hormone, 2876, 2881
guinea pig, 185
milk production peak, 187
persistency, 190
Hawaii, 1752
health, 311
herd life, 666
milk level, 703
ketogenesis, 1711
length adjustments, 702
lipoprotein metabolism, 2894
lowfat milk, 2894
L-tyrosine, 1430
mastitis losses, 441
milk composition, 363
recording, 351
release, 115, 2053
rate, 467
speed, 1273
milk fat composition, 2875
models, 1296
net energy, 427
nonlactating, 1860
nucleic acid metabolites, 723
orotate, 1024
oxytocin, 115, 2053
photoperiod, 2382
prepartum feeding, 270, 2939
prolactin release, 115, 2385
protected methionine, 550
protein AM-PM, 389
digestion, 2308
production, 640
efficiency, 1244
single-celled, 216
supplements, 218
rabbit, 76
fate of vitamin D, 76
tissue analysis, 79
rat, 64
alpha-lactalbumin, 66
caseins, 66
stage, 364
telemetry, 1753
traits, 837
tributyrin treatment, 1452
tropics, 1752
uridine monophosphate synthase deficiency, 1024
valeric acid, 2891
volatile fatty acids, 1890
water dynamics, 2336
intake, 2483
yields from alfalfa, 2318, 2348
almond hulls, 102
AM-PM, 355
beta-carotene, 1253
buffers, 2543
by-products, 2932
chloride response, 583, 1466
choline, 410
concentrates, 2543
corn gluten, 1217
cottonseed, 572
crab meal, 1968
energy feeds, 1421
ensiled feeds, 972
fatty acids, 288
feeding systems, 564
fermented feeds, 2460
first lactation, 557
group feeding, 903
growth hormone, 2873
heat stress, 2546
lipids, 1719

methionine, 2527
pasture, 2916
photoperiod, 589, 2383
prepartum-fed, 270
protein, 726, 1424, 2306, 2520
silage, 84, 95, 1743
soybeans, 1733
tyrosine, 433
udder quarters, 1017

NUTRITION

Calf

available nitrogen, 334, 1039
bile tolerance, 3048
blood selenium, 417
retention, 418
complete feeds, 2561
colostrum deprivation, 324
fermented, 315
immunoglobulins, 329
degradable protein, 1040
diarrhea, 2372, 2952
dietary adjuncts, 3045
diets, 2957
digestion, 2363
disodium phosphate, 2356
drinking, 1983
fat digestibility, 603
feces, 2966
feeding milk, 1989, 2958
fiber, 2369
gains, 316, 602
glucose, 2949
growth, 2562, 2951
health, 316, 335, 2949
intestinal lactobacilli, 3047
iron deficiency, 1259
jet-sploder, 2554
lead sulfate, 1007
toxicity, 1008
liver lipids, 2374
manganese-54, 1489
milk replacer, 593, 2370, 2958
mortality, 630, 908
neonatal, 416, 2961
penicillin residues, 2970
performance, 2957
plasma glutamic oxaloacetic transaminase, 2375
processed soybeans, 2556
protein solubility, 2560
rate of passage, 2364
ration forms, 337, 1038
reticular groove, 1985
rumen mucosa, 336, 338
scours, 2964
serum ferritin, 1256
size, 630
sodium bicarbonate, 313, 2358
starch digestibility, 603
starters, 2557, 2966
survival, 1496
swab test, 2971
veal, 2369, 2970
vital organs iron, manganese, 1491
volatile fatty acids, 1040
weaning, 910

Cattle

abomasal infusion, 1929
acid soluble nitrogen, 435
alfalfa bromegrass, 2336
dehydrated, 2315
digestibility, 2308
alkaloids, 104
almond hulls, 97
amino acids, 1096, 1139, 1729, 1923, 2529
limited, 549, 1928
plasma, 1933, 2521
ammonium butyrate, 277
properties, 482
salts, 278
anion-cation balance, 2942
blood flow, 1921
by-products, 2922
calcium 1860, 2242
hypocalcemia, 1722
soaps, 983
canola-protected feed, 1414
cell solubles, 429
walls, 1485
chloride, 1408
deficiency, 2324
cobalt analysis, 891, 2461
complete ensiled diet, 974
rations, 1422
corn gluten meal, 1214, 1940
degradability, 1936
high moisture, 970
corrugated paper, 2927
crab meal, 1965
cottonseed, 570
hulls, 2933
meal infusions, 1929
density, 2912
deuterium, 2337
dextrose, 1462
dietary ions, 2941
digestion events, 998
digestibility nitrogen, 427
flow, 1941
dry cows, 817
dry matter intake, 1243
duodenal digesta, 2523
energy density, 1424
fasting, 2274, 2283
fatty acids, 277, 983
feces analysis, 888
nitrogen, 1129
feed efficiency, 2075
feeding behavior, 566, 589
frequency, 1447
fermented products, 2460
fescue, 104
fiber digestibility, 982, 2906
fractions, 1483
forage grain ratio, 1953

forages
alfalfa, 430, 1482, 2308
coastal bermudagrass, 294
composition, 809
drying, 1746
enzyme digestion, 2601
grain, 1953
in situ digestion, 2600
in vitro digestion, 1211
Kentucky bluegrass, 1482
legumes, 1749
lignin, 1211
neutral detergent fiber, 429
orchardgrass, 1482, 1749
particle size, 1223
pasture, 2914
phenolic acid, 1209
potassium carbonate, 1749
quality, 1303
rare earth elements, 888
reed canarygrass, 1209
Russian wildrye, 1209
smooth bromegrass, 1209, 1482
sodium carbonate, 2916
soyhulls digestibility, 2599
sprays, 1745
sugars, 1211
wheat, 1482
xylose, 1212
glucose, 1923
goat diet, 1905
group feeding, 560, 636, 903
groundnut oil, 1721
growth hormone, 274
high concentrates, 307, 2532
grain, 2877
sodium, 580
insulin, 274, 1448
in vitro digestibility, 2903
loline, 106
low-high fill diets, 1240
roughages, 2532
metabolites, 723
methionine hydroxy analog, 2525
kinetics, 1932
magnesium intake, 2597
oxide, 2534
microbial nitrogen, 1094
neutral detergent fiber, 1241
nitrogen metabolism 1072
nucleic acid, 733
nutrient absorption, 1919
orchardgrass, 2585
parturient paresis, 817
photoperiod, 587, 2380
potassium, 2550
prediction equation, 428
primiparous cows, 1421
protein biosynthesis, 733
amounts, 1421
blood, 2241
degradability, 2907
dietary crude protein, 270
digestibility, 2306
energy, 1091
metabolizable, 1116
requirements, 1125
single celled, 216
solubility, 1729
undegradable, 1122
purine-pyrimidines, 735
rare earth elements, 891
return over feed costs, 2912
RayPro supplement, 218
rumen amino acids, 549
ammonia, 1001, 2294
absorption, 1075
pool, 1074
bacterial synthesis, 993, 1079
growth in vitro, 987
calcium soaps, 979
carbohydrates, 809
cells, 810
digesta, 1221, 1953
dilution rate, 3024
escape characteristics, 19, 1943
fatty acids, 413, 987, 1439, 1710
feedstuff materials, 808
fistulation, 1929
fluid analysis, 1708
inoculum, 2902
in situ fermentation, 1225, 2295
in vitro digestion, 1223
fermentation, 1440
isovaleric acid, 990
metabolism, 2360
microbial protein, 3061
mucosa, 336
organic acids, 296
particle density, 695
size, 1221, 1483
protected methionine, 548
protein degradation, 2294
turnover rate, 1244
volatile fatty acids, 1001, 1219
long-chained, 1439, 2350, 2362
volume, 3064
water bypass, 2471
whey, 3061
selenium, 222, 1863
serum lipids, 2528
silages
additives, 299, 1977
alfalfa, 299, 969, 2908
ammonia-treated, 82, 1474
brown midrib sorghum, 1739
coastal bermudagrass, 297
corn, 307, 970, 1474, 1482, 1743, 2046
fababean, 1533
soybean, 1533
cultivars, 1485
digestibility, 297, 1277, 1534, 2313
in vitro, 1303
dry matter, 303, 1480
grain sorghum, 93, 1743
grass legumes, 308
infrared reflectance, 1301
inoculum, 301

intake, 84
monensin, 294
nitrogen components, 301
passage rate, 1002
pH, 1000, 2048
propionic acid, 971
rye, 1302
sodium carbonate, 2045
sodium bicarbonate, 574, 1459, 2321, 2344, 2534
soybeans, 570
abomasal infusion, 1929
formaldehyde, 1945
heated, 1726
sulfur toxicity, 2179
sunflower hulls, 2924
seed, 570
tallow, 1718
tissue balance, 2076
total mixed rations, 902
water dynamics, 2338
wet corn gluten, 1214
distillers grains, 1940
ytterbium analysis, 891

Heifer

alfalfa, 1975
haylage, 1979
animal behavior, 3096
colostrum feeding, 3093
corn stover, 1971
first calf, 553
grain to milk, 558
Hereford-Angus, 1476
management, 3095
nutritional plane, 1993
oatlage, 1981
pairing replacements, 3093
photoperiod, 2380
prolactin, 2385
reproduction, 2420
silage intake, 1476
waste milk, 3094
wet corn gluten, 1976

GOAT

Aardi, 1655
acetate kinetics, 1203
age-parity, 1868
aldehydes, 799
Alpine, 202, 795, 1364, 1816, 1868
amino acids, 1656
antibiotic depletion, 707
blood serum, 2218
concentrate diets, 1907
fatty acids, 1657
fiber, 2875
French Alpine, 1806, 2216, 2974
hydrazone chromatography, 795
La Mancha, 202, 1069, 1364, 1816
lipids, 1203, 1916
lipolysis, 2216
lipoprotein lipase, 2217
lowfat syndrome, 1199
male odors, 744
Masri, 1655
methionine kinetics, 1915
milk composition, 1907
flavors, 797
yield, 1366
minerals, 2976
northeast US, 1069
Nubian, 202, 795, 1069, 1364, 1816, 1868
propionic acid, 1199
protein, 2976
Saanen, 202, 795, 1069, 1364, 1816, 1868
Saudi Arabia, 1655
sire evaluation, 1365
six-trans nonenal, 795
Toggenberg, 202, 1069, 1364, 1816, 1868
volatile acids, 1202

Sheep

Dorset, 802
fasted, 348
intestinal anerobes, 1230
ketogenesis, 347
magnesium intake, 2595
milk yield, 805
noncoccoid organisms, 1232
propionic acid, 344
siblings milk intake, 803
wethers, 1227

PHYSIOLOGY

General

acetate metabolism, 2247
aflatoxin, 110
ammonia, 481
anemia, 1256
serum iron, 1263
arginine infusion, 2507
blood calcium, 1238
electrolytes, 581
glucose, 1458, 2949
orotate, 1025
phosphorus, 1238
tyrosine, 1433
xylose, 2963
body temperature, 1014, 1052
carnitine palmitoyltransferase, 1709
cationic amino acids, 2500
circadian patterns, 1020
choline, 412
cytochalasin B, 3057
dimethyl sulfoxide, 3057
diurnal patterns, 1052
temperature, 1021
duodenal tyrosine, 1433
endocrine changes, 2455
environment, 1047
extracellular volume, 2344
fasted-fed sheep, 348
fasting, 2274, 2283

fat synthesis, 2897
genetic engineering, 1324
glucosuria, 2274, 2283
glucose kinetics, 2255, 2274
gluconeogenesis, 1454, 1707, 2265, 2283
glutathione peroxidase, 2467
growth hormone activation, 2511
  administration, 2873
  plasma, 2883
heat stress, 2549
hormone binding, 2224
hot weather, 1048
insulin, 490, 1453, 1710, 2507
intramammary infusions, 3057
ketogenesis, 1453, 1707, 2265
ketonemia, 2274, 2283
ketosis, 2258, 2265, 2274, 2283
lactogenic hormones, 2225
lead metabolism, 1009
  toxicity, 1007
lipoprotein metabolism, 2898
lymphoblastogenes, 111
lysine, 2502
mammary gland, 2224
  amino acid transport, 2500
  arterial-venous flow, 2530
  enzymes, 2058
  glucose interactions, 2251
  infusions, 1323
  involution, 2863
  lipoproteins, 2528
  metabolic effectors, 2253
  metabolites, 534, 2549
  milk synthesis, 531
  model, 537
  morphology, 134
  quarters, 827
  temperature, 1014
  tissue, 133, 2247
milk secretion, 2057
neonatal calves, 416
neutrophil migration, 826
nutrient absorption, 1919
orotic acid, excretion, 487
oxytocin release, 121
parturient paresis, 1236
peroxide tissue fat, 595
phlorizin, 2238, 2265
physiological state, 698
phytohemeagglutinin, 110, 2229
plasma lipids, 2877
plasma volume 2341
prolactin release, 115, 2229, 2510
propionate excretion, 698
prostaglandins, 137
protein biosynthesis, 726
purines-pyrimidines, 725
red blood cells, 1259
rumen morphology, 334
selenium retention, 418, 2465
serum ion, 1261
telemetry, 1047
tributyrin, 1453
24,dihydroxyvitamin D_3
ultradian rhythm, 1018
urease, 486
uridine monophosphate synthase, 1024
urine orotate, 1028
water transfer, 2340
zonal centrifugation, 2056

Reproduction

adenosine monophosphate, 2778
age of cow, 861
ammonium salts, 288, 481, 490
artificial insemination, 142, 155
beta-carotene, 1249, 1316, 2975
body fluids, 388, 392
biotelemetry, 1047
buffalo sperm, 1535
calf survival, 1498
calving ease, 1496
culling, 1783
conceptions, 140, 158, 272, 382, 653, 861
  first service, 690
  per service, 1507
conceptus tissues, 2804
corpus luteum, 1318
crude protein, 270
cumulus cell expansion, 2780
cystic ovaries, 123
days open, 384
diets, 1245
disorders, 126
dynamic dairy model, 644
dystocia, 451
economic considerations, 2815
embryo development, 2775
  split, 2872
  transfer, 2786, 2817
estrus, 146, 155, 1779, 1800, 2450
  indoors, 1793, 2446
  milk, 395
  odor detection, 388, 395
fertility, 383, 452, 647, 1142, 1785, 1803
follicle-stimulating hormone, 1997, 3072
  fluid, 1328
genetic manipulation, 2812
gestation, 2614
glucose, 1252
glycosaminoglycans, 2006
goat breeding, 1813
gonadotropin-releasing hormone, 144
heifers, 2614
heparin, sulfate, 2008
herd health, 688, 1787
human chorionic gonadotropin, 2983, 3782
insemination time, 141, 1802
insulin, 1251
in vitro fertilization, 2780
Israel Holsteins, 853
large herds, 686
livability, 453
luteinizing hormone, 491, 1252, 1997, 3071
male-female fertility, 1559
mammalian sperm, 1147
management, 153, 380

metritis, 125
oocyte maturation, 2776
ovarian activity, 1776
parturition, 628, 863
physical activity, 150
polychlorinated biphenyls, 224
  in utero exposure, 227
porcine plasma, 1316
pregnancy, 2507, 2615, 2792
  buffalo, 2001
preparturient disorders, 271
progesterone, 149, 159, 1251, 1777, 1996, 2980
prolactin, 2002, 2617
prostaglandin $F_{2\alpha}$, 148, 380, 1800, 2799
repeat services, 142
reproductive performance, 1245, 1504, 1561, 1783
  tract secretions, 2006
retained placenta, 125, 647
selenium, 123
semen quality, 398, 1806
  treatment, 686
serum T_4, 2615
sperm motility, 1153
  processing, 399
steroid synthesis, 2806
synchronization, 154
testosterone, 3973
toxicology of sulfur, 2179
vaginal mucus, 390
vitamin A, 1317
vitamin E, 125
volatile fatty acids, 288
zinc in sperm, 1147

REVIEWS

ammonium, 481
mammalian sperm zinc, 1147
sulfur toxicity, 2179

SYMPOSIA

embryo development, 2773
  transfer, 2786
genetic manipulation, 2819
maturation and fertilization, 2775
multiple traits, 1554
nitrogen metabolism in rumen, 1072
pregnancy in cattle, 2787
protein energy, 1090
  nutrition, 1072
  systems, 1115
sire selection, 444

DAIRY FOODS

BUTTER

canola feeding, 2042
free fatty acids, 1195, 1517
gas chromagraphy, 1517
lipase, 1194
oxidation, 1416
protected lipids, 1414, 2041
quality, 1418
rancidity, 1196, 1418
storage, 1195
texture, 1419

CHEESE

Blue

flavor, 876
salt, 879

Brie

free fatty acids, 874

Brick

free fatty acids, 877

Camembert

flavor concentrate, 2850
free fatty acids, 661, 875
lipase, 2852
mold ripened, 2851
protease, 2853
sodium chloride, 879

Cheddar

aminopeptidase, 2483
bacteriophage, 1183
caprylic acid, 1523
casein recovery, 1879
chromatographic patterns, 1393
commercial cultures, 1065
composition, 1878, 2842
copper soaps, 1522
curd firmness, 1187
curing, 2483
discriminant analysis, 1391
fat recovery, 1879
flavor, 1894
free fatty acids, 877
Hull's method, 61
membrane filtration, 2840
milk coagulation, 729, 919, 930, 1185
mixed strain cultures, 1065
  streptococci, 1181
New York yield, 1873
nonvolatiles, 1396
processed cheese composition, 767
  flavor, 708
  texture, 768, 1892
protease-negative culture, 518
proteolysis, 61
rancidity, 1523
ripening, 1390
retentate composition, 1889
salt, 1893, 2839
slurries, 61
sodium, 879

technology, 1632
trinitrobenzene sulfonic acid, 61
Van Slyke formula, 1873
water extract, 1391
yields, 1066, 2845

Cheese Industry

marketing, 2100
milk quality, 1071
problems, 2091
processing, 2095
regulations, 2108

Cheshire

technology, 1636

Colby

free fatty acids, 876
general scheme, 1638

Cottage

cooking, 2203
cultures, 2195, 2200
  defined, 1175
cutting pH, 2195, 2200
milk coagulation, 729, 919, 920
phage-insensitive mutants, 1175
quality, 2192
retentate composition, 1889
sodium chloride, 1542
viscoelasticity, 729
vitamin A, 2188
yield, 2202

Edam

free fatty acids, 878
manufacture, 1633

Gjetost

free fatty acids, 876

Gouda

manufacture, 1633
sodium chloride, 879

Gruyere

bacteria, 1402
diacetyl, 1401
free fatty acids, 876, 1400
proline, 1400
ripening, 1399

Limburger

free fatty acids, 875

Monterey

free fatty acids, 875

Mozzarella

fatty acids, 962
flavor, 966
sodium chloride, 879

Muenster

sodium chloride, 881

Parmesan

flavor, 964
free fatty acids, 962

Port Salut

free fatty acids, 875

Provolone

flavor, 963
free fatty acids, 875, 962

Ricotta

sodium chloride, 879

Romano

free fatty acids, 962

Sapsago

free fatty acids, 876

Swiss

free fatty acids, 877
sodium chloride, 879
type technology, 1637

WHEY

bacterial growth, 2833
  inhibitors, 2867
composition, 940
demineralization, 940
denaturation, 941
energy consumption, 1411
heating, 943
heme receptor, 2835
hollow wound modules, 1408
lactose analysis, 884
liquid chromatography HP, 885
permeate, 884
protein functionality, 2693–2774
  components utilization, 2621–2692
retentate composition, 1888
spiral wound modules, 1409

transmembrane pressure, 1408
ultrafiltration, 1406

CULTURED MILK

agglutinin titers, 1178
autolysate, 38
bacteriophage, 1183
  insensitivity, 1177
bifidobacteria, 1376
buttermilk, 1175, 1541
coagulation, 731
curd firmness, 1187
defined strains, 1177
dietary adjuncts, 1379
Dulce de Leche, 1694
freezing, 24
folic acid, 1169
galactosidase, 2212
glucosidase, 53
lactic cultures, 1169, 1674
milk coagulation, 1185
protease negative, 518
rennet, 729
ropy streptococci, 736
  Scandinavia, 735
skim milk, 1169
slime composition, 738
soy proteins, 263
starter media, 37
  storage, 27
streptococcal strains, 1181
  fast-slow, 1676
  medium, 1675
thermophilic starters, 44
vitamin B_{12}, 1169

Yogurt

acidogen hydrolysis, 1382
consumer acceptance, 1369
curd tension, 406
fruit flavors, 1369
gelation, 1383
glucono delta lactone, 1385
heat effects, 407
high performance liquid chromatography, 760
intake for people, 258
lactic fermentation, 1169, 1386
lactose utilization, 1
lipoproteins, 259
marketing, 1370
rheology, 405
soluble sugars, 761
ultra-high temperatures, 406

ICE CREAM

composition, 1546
fat destabilization, 781
flavor, 1545
frozen desserts, 1860
low calorie, 1860
overrun, 781
polyunsaturated oil, 789
response surfaces, 791
texture, 1545
total solids, 1547
vanilla, 1541

MICROBIOLOGY

aminopeptidase, 2483
antibiotics, 521
Bacillus stearothermophilus, 437
  cereus var. *fluorescens*, 513
  human milk
bacterial growth in whey, 2835
bacteriophage, 519
Bifidobacterium adolescentis, 1377
  infantis, 1377
Butyrivibrio fibrosolvens, 1229
calcium, 44
Candida cylindrasea, 1194
  lipase, 1195
Clostridium botulinum, 2116
low-acid canned foods, 2116
  tyrobutyricum, 1493
Corynebacterium bovis, 614, 1295, 1355, 1829, 1854
  pyogenes, 2834
enteropathogens, 3045
Escherichia coli, 369, 607, 615, 1281, 1332, 1355, 1629, 2834, 2863, 3045, 3075
fast-slow streptococci, 1674
foodborne disease, 513
intestinal anaerobes, 1230
Klebsiella, 369, 1281, 2834
  fragilis, 37
  oxytoca, 3075
  pneumoniae, 607, 1829, 3075
Kluyveromyces lactis, 1694, 2210
Lactobacillus acidophilus, 1170, 3045
  bulgaricus, 44, 1170, 1382
lactose-negative mutants, 952
  metabolism 951
Leuconostic citrovorum, 1176
phosphate, 49
membrane filtration, 2494
pathogen generation time, 3834
Penicillium caseicolum, 2850
phosphotransferase, 937
Pseudomonae fluorescens, 27, 52, 1680
  glucosidase, 53
  lipase, 1681
Pseudomonas sp. B-25, 522
  heat-stable protease, 523
psychrotrophs, 1663, 1680
Ruminococcus albus, 1233
spores, 2493
Staphylococcus aureus, 369, 607, 614, 1281, 1327, 1332, 1355, 1854, 2062, 2438
Streptococcus agalactiae, 369, 607, 1829, 1854, 2062, 2437, 2834, 3075
  bovis, 1229, 1525
  cremoris strains, 22, 1176, 1181, 2856
  diacetylactis, 1176
  lactis, 950, 2856
  uberis, 369, 607, 2834, 3075

streptococcal agglutinins, 7
assay, 2856
protease-negative, 519, 2856

MILK AND CONSTITUENTS

abnormal, 1510
agglutination, 2824
aggregation, 922
alpha$_{s1}$ casein, 1603
alpha-lactalbumin, 716
denaturation, 2452
ammonia, 481
antibiotic detection, 438
retention, 437
apo-lactoferrin, 606
bacterial contamination, 2585
beta-lactalbumin, 1613
beta-lactoglobulin, 716, 1611, 1699
reaction order, 1702
camel's daily yield, 1551
casein, 364, 749
micelles, 268, 499, 919
separation, 3053
structure, 505
variants, 835
centralized milk testing, 3085
chromatography, high performance liquid, 225, 885
clustering, 2824
coagulation, 919, 930, 1185
absorbance, 747
curd strength, 263
composition changes, 363
conductivity, 1511
creaming, 2821
developing countries, 1054
electrophoresis, 3052
enzymes:
alkaline phosphatase, 1165
chymosin, 922, 933, 1136
gamma-glutamyltransferase, 1165
glass immobilization, 1163
glycosidase, 53
lactase activity, 4, 2211
oxgall, 4
sulfhydryl oxidase, 1154
xanthine oxidase, 1154
fatty acids, 2350
fat globule membrane, 1618, 2833, 2923
fat test accuracy, 3091
automatic sampling, 3089
flavors, 1417, 1663, 1739
gelation, 925
goat composition, 1907, 1912
flavor, 794
six-trans nonenal, 794
human, 513
immunoglobulins, 1614, 2822
kappa-casein, 1705
lowfat chocolate, 1541
lactose analysis, 884
metabolism, 951
membrane filtration, 2494
methylbutyric acid, 2891
milking (see dairy herds)
nonfat dried
calcium, 2591
clot inhibition, 2590
free fatty acids, 2592
storage stability, 2189
vitamin A, 2189
nucleic acid, 723
orotate, 1026
oxidation, 1416
phosphates, 44
pricing, 444
protected lipids, 1414
protein interactions, 713
nomenclatures, 1599
pumping energy, 1159
pyruvate, 1662
quality, 1058, 1417, 2580
rancidity, 1418
rennet curd, 265, 732
retentate composition, 1890
Saudi Arabia, 1054
skim milk membranes, 56, 1161, 2873
solids-not-fat, 447
somatic cells (see diseases)
soy proteins, 264
modification, 267
sterile concentrate, 1666
calcium, 1668
heat stability, 1670
Sub-Sahara Africa, production, 1548
toxic organisms, 513
ultrafiltration, 1660
valeric acid, 2891
viscosity, 1157
viscoelasticity, 731
vitamins A, D, 1649
volatile fatty acids, 2890

MILK SYNTHESIS (see PHYSIOLOGY, General)

REVIEWS

approach to cheese technology, 1632
casein micelles, 499, 919
lactalbumin-lactoglobulin, 713
protein nomenclature, 1594
whey components, 2621–2692
proteins, 2693–2775

SYMPOSIA

cheese industry problems, 2091
manufacturing, 2095
marketing, 2100
milk quality, 2091
regulation, 2108
whey production, 2620
fractionation, 2621
lactose properties, 2654
utilization, 2630
protein recovery, 2680
whey protein concentrates, 2693
evaluating methodology, 2734
food systems, 2745
functional aspects, 2723, 2757